

PATENT ABSTRACTS OF JAPAN

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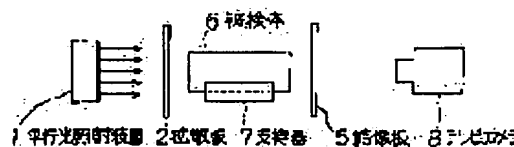
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(54) INSPECTING METHOD AND APPARATUS FOR CLOGGING OF HONEYCOMB BODY

(57)Abstract:

PURPOSE: To easily and automatically obtain the clogging rate of a honeycomb body through image processing by mixing and casting a light parallel to a fine aperture and a diffusion light to the honeycomb body.

CONSTITUTION: When a parallel light is cast to a diffusion panel 2, the parallel light partly passes through the diffusion panel 2 as it is, and is partly turned to a diffusion light through the diffusion panel 2. When the parallel light parallel to slim apertures of a honeycomb body 6 to be inspected and the diffusion light are cast to the slim apertures in the mixed state, only the clogging part is seen as a black part owing to the shading effect of the diffusion light. A projected image except for the honeycomb body 6 to an image forming plate 5 is eliminated by adjusting the mixing ratio of the parallel light and the diffusion light, or the distance of the diffusion panel 2 from the honeycomb body 6 to the image forming plate 5 corresponding to the length of the slim aperture or the size of the mesh formed by the slim apertures.



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CLAIMS

[Claim(s)]

[Claim 1] The blinding inspection approach of a honeycomb object of acquiring a projection image to the image-formation plate which was mixed, irradiated the parallel light and the diffused light which are parallel to pore at the honeycomb object which is analyte, and has been arranged to the opposite side the exposure side to analyte when making the other end passing light from the end of the pore of the honeycomb object which has the pore of the shape of a straight line of parallel a large number and inspecting the blinding of pore according to the passage condition of light.

[Claim 2] An parallel light irradiation device and the diffusion plate arranged to the path of the parallel light irradiated from this equipment, The image formation plate which faced the diffusion plate, kept spacing and has been arranged at the right angle from the diffusion plate at the path of the parallel light ahead of [of parallel light] a travelling direction at parallel light, Blinding test equipment of the honeycomb object which has the support machine arranged between the image formation plates and diffusion plates which support the analyte which consists of a honeycomb object which has the pore of the shape of a straight line of parallel a large number so that parallel light and pore may be parallel.

[Claim 3] An parallel light irradiation device and the half mirror which made the light transmission side the incidence side of parallel light at the path of the parallel light irradiated from this equipment, and has been arranged aslant, The diffused-light irradiation equipment arranged so that the diffused light may be irradiated toward the light reflex side side of a half mirror, The image formation plate which faced the half mirror, kept spacing and has been arranged at the right angle from the half mirror at the path of the parallel light ahead of [of parallel light] a travelling direction at parallel light, Blinding test equipment of the honeycomb object which has the support machine arranged between the image formation plates and diffusion plates which support the analyte which consists of a honeycomb object which has the pore of the shape of a straight line of parallel a large number so that parallel light and pore may be parallel.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the approach and equipment which the pore of the honeycomb object which has the pore of the shape of a straight line of parallel a large number is made to pass light from an end to the other end, and inspect the blinding of pore according to the passage condition of light.

[0002]

[Description of the Prior Art] Catalysts, such as an emission-gas-purification catalyst of an automobile and an offensive odor purification catalyst, apply the mixed slurry of cerium oxide and an alumina, and the water solution of catalyst metal salts, such as Pd, Pt, and Rh, to the inside of the pore of the support which consists of a honeycomb object which has the pore of the shape of a straight line of parallel a large number, dry, are calcinated, and are manufactured so that the touch area of a catalyst and a gas may become large. It dries, after the liquid applied in the pore of a honeycomb object in this process has collected, and blinding may be produced in pore.

[0003] Inspection of this blinding makes the pore of a honeycomb object pass light generally, and is conducted according to the passage condition of light. However, since time amount will be taken if it inspects for every a part of pore of a honeycomb object, or part, the light which the pore of the whole honeycomb object was made to pass light, and passed the honeycomb object is applied to the image formation plate arranged at light and a right angle, and the method of viewing and judging the brightness of the light on an image formation plate is performed. In order to judge visually, it is necessary to make bright the projection image on an image formation plate. It follows on irradiating light and light and darkness, such as an image of support machines of a honeycomb object other than a honeycomb object and a dark part of the circumference of it, are greatly reflected so that a projection image may be made bright, in quest of the brightness of an average of the image, an image formation plate is projected on a television camera with a photometer, and it becomes a failure in the case of carrying out in quest of the ratio of an umbra and a bright section etc. by the image processing, and asking for the rate of blinding automatically.

[0004]

[Problem(s) to be Solved by the Invention] Only the blinding part of the projection image acquired on an image formation plate is obtained as an umbra, and this invention makes it a technical problem to make it easy to ask for the rate of blinding automatically by the image processing.

[0005]

[Means for Solving the Problem] this invention -- ** -- the blinding inspection approach of a honeycomb object of acquiring a projection image to the image-formation plate which was mixed, irradiated the parallel light and the diffused light which is parallel to pore at the honeycomb object which is analyte, and has arranged to the opposite side an exposure side to analyte when making the other end passing light from the end of the pore of the honeycomb object which has the pore of the shape of a straight line of parallel a large number and inspecting the blinding of pore according to the passage condition of light.

[0006] And ** parallel light irradiation device and the diffusion plate arranged to the path of the parallel light irradiated from this equipment, The image formation plate which faced the diffusion plate, kept spacing and has been arranged at the right angle from the diffusion plate at the path of the parallel light ahead of [of parallel light] a travelling direction at parallel light, Blinding test equipment of the honeycomb object which has the support machine arranged between the image formation plates and diffusion plates which support the analyte which consists of a honeycomb object which has the pore of the shape of a straight line of parallel a large number so that parallel light and pore may be parallel.

[0007] The half mirror which made the light transmission side the incidence side of parallel light at the path of the parallel light irradiated by the list from ** parallel light irradiation device and this equipment, and has been arranged aslant, The diffused-light irradiation equipment arranged so that the diffused light may be irradiated toward the light reflex side side of a half mirror, The image formation plate which faced the half mirror, kept spacing and has been arranged at the right angle from the half mirror at the path of the parallel light ahead of [of parallel light] a travelling direction at parallel light, It is in the blinding test equipment of the honeycomb object which has the support machine arranged between the image formation plates and diffusion plates which support the analyte which consists of a honeycomb object which has the pore of the shape of a straight line of parallel a large number so that parallel light and pore may be parallel.

[0008]

[Function] When this invention mixes and irradiates the parallel light and the diffused light which are parallel to pore at the pore of the honeycomb object which is analyte, it is made only for a blinding part to be reflected as an umbra using the shading-off effectiveness of the diffused light. As an approach of mixing the diffused light, the approach using thin glass and the thin plastic sheet of the translucent opalescence as a diffusion plate, and a half mirror is in parallel light. If parallel light is irradiated at a diffusion plate, a part of parallel light is penetrated as they are, and a part of parallel light will penetrate a diffusion plate, and will turn into the diffused light. Make a light transmission side into the incidence side of parallel light at the path of parallel light, and make it incline aslant in the case of a half mirror, and it arranges a half mirror. The diffused light is reflected in an parallel light [to which it is made for parallel light to penetrate a half mirror, and it irradiated and penetrated the diffused light to the light reflex side of the half mirror of the incidence side to the half mirror of parallel light, and the opposite side], and ** side by the half mirror, parallel light and the diffused light are mixed, and the honeycomb object which is analyte is irradiated.

[0009] Projection images other than the honeycomb object to an image formation plate can be erased by adjusting the distance from the mixed rate of parallel light and the diffused light, a diffusion plate, or a half mirror to a honeycomb object, and the distance from a honeycomb object to an image formation plate according to the die length of pore, and the magnitude of the mesh currently formed of pore. What is used as an image formation plate as a reticle of the finder of a camera, a twin-lens reflex camera, and a black box camera, and the same thing are used.

[0010]

[Example]

The diffusion plate 2 which the example 1 shown in example 1 drawing 1 has arranged to the path of parallel light where it irradiates from the parallel light irradiation device 1 and this equipment 1, The image formation plate 5 which faced the diffusion plate 2, kept spacing and has been arranged at the right angle from the diffusion plate at the path of the parallel light ahead of [of parallel light] a travelling direction at parallel light, It consists of a support machine 7 arranged between the image formation plates 5 and the diffusion plates 2 which support the analyte 6 which consists of a honeycomb object which has the pore of the shape of a straight line of parallel a large number so that parallel light and pore may be parallel.

[0011] The half mirror 3 which the example 1 shown in example 2 drawing 2 made the light transmission side the parallel light irradiation device side at the path of the parallel light irradiated from the parallel light irradiation device 1 and this equipment 1, was made to incline to parallel light, and has been arranged, The diffused-light irradiation equipment 4 arranged so that the diffused light may be irradiated at the light reflex side side of a half mirror 3, The image formation plate 5 which faced the half mirror 3, kept spacing and has been arranged at the right angle from the half mirror 3 at the path of the parallel light ahead of [of parallel light] a travelling direction, It consists of a support machine 7 arranged between the image formation plates 5 and half mirrors 3 which support the analyte 6 which consists of a honeycomb object which has the pore of the shape of a straight line of parallel a large number so that parallel light and pore may be parallel.

[0012] When only parallel light is irradiated at analyte 6 at drawing 1 in the conventional equipment which does not have the diffusion plate 2 in equipment As shown in drawing 3 , with the analyte image 10 which has a mesh pattern, and support **** 11 of the perimeter, further, the image of the umbra of the perimeter and blinding **** 12 in the analyte image 10 have a clear light-and-darkness difference within the camera visual field 9 of a television camera 8 of having doubled the focus with the image formation plate 5, and it was reflected in it.

[0013] On the other hand, in the result of having inspected the blinding of a honeycomb object with the equipment of drawing 1 and drawing 2 , as shown in drawing 4 , in the camera visual field 9, the analyte image 10 was reflected thinly, blinding **** 12 was reflected a little deeply into it, and the umbra of surrounding support **** 11 or its perimeter was not reflected. Therefore, if this image is used, it will

become possible to carry out in quest of the whole blinding part rate of area etc. in quest of the brightness of an average of an image by the image processing, and to ask for the rate of blinding automatically with a photometer.

[0014]

[Effect of the Invention] According to this invention, only the blinding part of the projection image acquired on an image formation plate is obtained as an umbra, and the blinding inspection approach and equipment of a honeycomb object which make it possible to ask for the rate of blinding automatically by the image processing can be offered.

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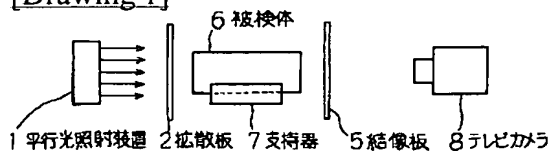
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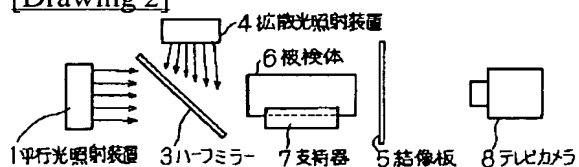
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DRAWINGS

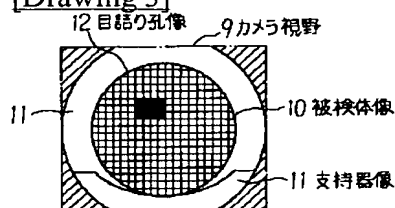
[Drawing 1]



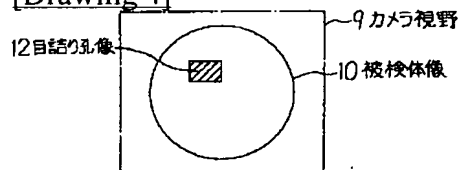
[Drawing 2]



[Drawing 3]



[Drawing 4]



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